

COURSE INFORMATION

Department/ Faculty:	Mechanical Precision Engineering Malaysia-Japan international Institute of Technology	Page:	1 of 6
Course Code:	SMJP2131	Academic Session/ Semester:	2017/2018 - II
Course Name:	Laboratory 1	Pre/co-requisite (Course name and code, if applicable):	
Credit Hours:	1	Version	D

Course synopsis	This course presents the principles and methodology for mechanical engineering programme laboratories. In particular, it is designed to understand the theory and application of measuring instruments and equipment, to discuss and evaluate experimental errors, to provide hands-on experience using laboratory instruments. Experiments involved are particularly of mechanical engineering subjects such as mechanics of machine, strength of material and materials science. Students also learn formal technical writing skills which are required for all written reports.			
Course Coordinator (If applicable)	Dr. Nur Azmah Nordin			
Course Lecturer(s)	Name	Office	Contact no.	E-mail
	Dr. Nur Azmah Nordin	05-38-01	22031310	nurazmah.nordin
	Dr. Shahira Liza Kamis	05-29-01	22031315	shahiraliza
	Dr. Uswah Khairuddin	CAIRO Lvl 8	22031493	uswah.kl

Mapping of the Course Learning Outcomes (CLO) to the Programme Learning Outcomes (PLO), Teaching & Learning (T&L) methods and Assessment methods:

No.	Course Learning Outcome (CLO)	PLO (ICGPA Code)	Weight (%)	Taxonomies and Generic-Skills	CP	CA	KP	Assessment Methods
CO1	Set-up and run the experiments according to the provided equipment, relates and report the theory and experiments based on learning in class	PO5	10	P4	2	1	1	R
CO2	Survey and recognise the equipment in order to measure on any application relates to the mechanic machine, strength of material and materials science subject.	PO9	80	C4	2	1	3	R

Prepared by: Name: Nur Azmah Nordin Signature: Date: 1 February 2018	Certified by: Name: Signature: Date:
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No.	Course Learning Outcome (CLO)	PLO (ICGPA Code)	Weight (%)	Taxonomies and Generic-Skills	CP	CA	KP	Assessment Methods
CO3	Demonstrate commitment and team working at all levels	P10	10	C4	2	1	3	R

Refer *Taxonomies of Learning and **UTM's Graduate Attributes, where applicable for measurement of outcomes achievement

***T – Test; Q – Quiz; HW – Homework; PR – Project; Pr – Presentation; F – Final Exam etc.

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Details on Innovative T&L practices:

No.	Type	Implementation
1	Lecture Method	Provide basic understanding of concept and theory on the mechanics of machine, strength of material and materials science. However lecturing method will be combined with other method to ensure the students stay focus.
2	Demonstrated Method	This method will be used to explain the application of measuring instruments and equipment, to discuss and evaluate experimental errors and to provide hands-on experience using laboratory instruments.

Weekly Schedule:

Week 1	Introduction of Laboratory 1
Week 2	Mechanic of Machine Lab - Briefing / Introduction - Group 1 Materials Science Lab - Briefing / Introduction - Group 2 Solid Mechanic Lab - Briefing / Introduction - Group 3
Week 3	Mechanic of Machine Lab -Centrifugal Force - Group 1 Materials Science Lab -Metallography - Group 2 Solid Mechanic Lab -Bending Moment - Group 3
Week 4	Mechanic of Machine Lab - Gear Trains - Group 1 Materials Science Lab - Jominy End-Quench Test - Group 2 Solid Mechanic Lab -Tensile Test - Group 3
Week 5	Mechanic of Machine Lab - Friction on Horizontal and Inclined Plane - Group 1 Materials Science Lab Solid Mechanic Lab -Thin Cylinder - Group 3

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Week 6	Mechanic of Machine Lab - Briefing / Introduction - Group 3 Materials Science Lab - Briefing / Introduction - Group 1 Solid Mechanic Lab - Briefing / Introduction - Group 2
Week 7	Mechanic of Machine Lab - Centrifugal Force - Group 3 Materials Science Lab - Metallography - Group 1 Solid Mechanic Lab - Bending Moment - Group 2
Week 8	Mechanic of Machine Lab - Gear Trains - Group 3 Materials Science Lab - Jominy End-Quench Test - Group 1 Solid Mechanic Lab - Tensile Test - Group 2
Week 9	Mechanic of Machine Lab - Friction on Horizontal and Inclined Plane – Group 3 Materials Science Lab Solid Mechanic Lab - Thin Cylinder - Group 2
Week 10	Mechanic of Machine Lab - Briefing / Introduction - Group 2 Materials Science Lab - Briefing / Introduction - Group 3 Solid Mechanic Lab - Briefing / Introduction - Group 1
Week 11	Mechanic of Machine Lab - Centrifugal Force - Group 2 Materials Science Lab - Metallography - Group 3 Solid Mechanic Lab - Bending Moment - Group 1
Week 12	Mechanic of Machine Lab - Gear Trains - Group 2 Materials Science Lab - Jominy End-Quench Test - Group 3 Solid Mechanic Lab - Tensile Test - Group 1

Transferable skills (generic skills learned in course of study which can be useful and utilised in other settings):

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Week 13	Mechanics Machine Lab -Friction on Horizontal and Inclined Plane – Group 2 Material Science Lab Solid Mechanic Lab -Thin Cylinder - Group 1
Week 14	Mechanics Machine Lab -Discussion and Submitting Reports Solid Mechanic Lab -Discussion and Submitting Reports Material Science Lab -Discussion and Submitting Reports

Student Learning Time (SLT) Details:

Distribution of student Learning Time (SLT) Course content outline					Teaching and Learning Activities		TOTAL SLT
	Guided Learning (Face to Face)				Guided Learning Non-Face to Face	Independent Learning Non-Face to face	
CLO	L	T	P	O			
1	1				3	0	4
2	12				16	4	32
3	1				1	2	4
Total SLT	14				20	6	40

Special requirement to deliver the course (e.g: software, nursery, computer lab, simulation room):

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Grading:

Assessment Method		CO	Taxonomy Level & Soft Skill	PO5	PO9	PO10
Components	Grading			Modern Tool Usage	Communication	Team Working
Conducting Experiments	10%	CO1	P4	10		
Writing Reports	80%	CO2	C4		80	
Team Working	10%	CO3	A4, TW1, TW2, TW3			10
TOTAL MARKS				10	80	10

Learning resources:

Text Books (If Applicable)

1. Hibbeler, R.C.; "Engineering Mechanics: STATICS", 12th edition, Pearson and Prentice Hall, 2010.
2. R.C.Hibbeler, "Mechanics of Materials", Prentice Hall Intl., 2005.
3. Shames, I.H., Mechanics of Fluids, 4th Edition, McGraw-Hill, 2003
4. Y.A. Cengel & M.A. Boles 'Thermodynamics-An Engineering Approach'. New York : Mcgraw-Hill, 2006
5. Shackelford, J.F., 'Introduction To Materials Science For Engineers'. U.S.A. : Prentice Hall, 2005
6. W.D. Callister, Jr, 'Materials Science and Engineering An Introduction', New York, USA, Jon Wiley and Sons Inc., 2014.

Academic honesty and plagiarism:

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Other additional information (Course policy, any specific instruction etc.):

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Disclaimer:

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